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Remarks

In response to the Notice mailed July 17, 2006, applicant submits herewith a full listing of the claims, including the withdrawn claims. Applicant regrets any inconvenience to the Examiner.

The notice mailed July 17, 2006 also stated that applicant's reply did not present any arguments pointing out the specific distinctions believed to render the newly presented claims (47-68) patentable over any applied references. Applicant notes that in response to a telephone interview conducted December 18, 2006, the Examiner has withdrawn this objection. Applicant notes here that claims 3 to 13 and 16 to 22 were previously indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 3-13 and 16-22 have been rewritten substantially as new claims 47-57 and 58-64, respectively. New claims 65-68 are dependent on independent claim 47, which is indicated to be allowable. Further, claims 65-68 include

Claims 33 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite because there is no antecedent basis for "said self-locking mount" in claim 33 and no antecedent basis for "said pump shaft" in claim 34. In response, claims 33 and 34 have been amended. Applicant regrets any inconvenience to the Examiner.

Claims 1, 2, 14 and 15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Gebauer et al. With respect to claim 1, the Office Action states, "Either of parts 10 or 12 is readable as a first component, and the diaphragm is readable as a second

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component. These components have interfaces that are inclined relative to one another (see surfaces 32a and 32b). Office Action, p. 2-3. In response, independent claim 1 has been amended to more particularly recite embodiments of applicant's invention including features not taught, disclosed or suggested by Gebauer et al., or the other patents cited in the Office Action.

Claim 1 now recites a diaphragm pump housing comprising first and second components having first and second connection interfaces and, "interior fluid communication channels extending through each component, said channels aligning with one another on at least one of said interfaces and connecting said exterior ports with said interior chamber when said first and second components are connected." In contrast, Gebauer et al. teach communication channels extending through only one component, namely, the pump head 10. Referring to Fig. 2 of Gebauer et al., an outlet channel 19 extends from the paint chamber 18 to a paint outlet valve 20. The outlet channel 19 extends only through the pump head 10. Likewise, the inlet valve 16 also extends only through the pump head 10. Neither the outlet channel 19 nor the channel of the inlet valve 16 of Gebauer et al. extends through the diaphragm or the hydraulic block 12. Therefore, Gebauer et al. does not teach, disclose or suggest "communication channels extending through each component, said channels aligning with one another on at least one of said interfaces and connecting said exterior ports with said interior chamber when said first and second components are connected" as recited in claim 1.

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Further, none of the other references cited in the Office Action teaches, discloses or suggests "communication channels extending through each component, said channels aligning with one another on at least one of said interfaces and connecting said exterior ports with said interior chamber when said first and second components are connected" as recited in claim 1. Therefore, claim 1 is not anticipated by or obvious in view of the references cited in the Office Action.

With respect to claim 2, the Office Action states that bolt 14 is readable as locking means which can be hand assembled." Office Action, p. 3. Applicant respectfully traverses the assertion that bolt 14 "is readable as locking means which can be hand assembled."

The term "hand assembled" is defined in the specification as "capable of being assembled by hand without the use of tools of any kind." In contrast with applicant's hand assembled diaphragm pump, the pump disclosed by Gebrauer et al. requires tools to assemble. For example, while the bolt 14 shown in Fig. 1 of Gebrauer et al. may be *partially* installed by hand, the bolt must be tightened with a tool, especially since the bolt head is countersunk in the pump head 10 as best seen in Fig. 1. Therefore, Gebrauer does not teach, disclose or suggest that the "first and second components and said locking means can be hand assembled" as recited in claim 2.

Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Ludwig. The Office Action states, "Screws are readable as locking means." Claim 23 has been amended to add the same language discussed above with respect to claim 1, namely,

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“communication channels extending through each component, said channels aligning with one another on at least one of said interfaces and connecting said exterior ports with said interior chamber when said first and second components are connected.” In contrast, Ludwig teaches an inlet port 78 and an outlet port 80 that extend only through the top component (not numbered) of the pump 15. Neither the inlet port 78 nor the outlet port 80 of Ludwig extends through a first and second housing component. Ludwig does not teach, disclose or suggest “communication channels extending through each component, said channels aligning with one another on at least one of said interfaces and connecting said exterior ports with said interior chamber when said first and second components are connected” as recited in claim 23. Therefore, claim 23 is patentable for the same reasons as discussed above with respect to claim 1.

Further, claim 23 recites, “a diaphragm pump *that can be assembled by hand*.” The term “hand assembled” is defined in the specification as “capable of being assembled by hand without the use of tools of any kind.” In contrast with applicant’s hand assembled diaphragm pump, the pump disclosed by Ludwig requires tools to assemble. For example, Ludwig’s pump includes screws 52, 53, which mount the pump 15 to the raised section 50 of the top 48 of the housing 10. Ludwig also includes screws 63 and 64, which mount the motor 17 to a circular flange 62 of sleeve 20. For this additional reason, claim 23 is not anticipated by or obvious in view of Ludwig.

Independent claims 34, 38, 39 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Bramstedt et al. The Office Action states that Bramstedt et al. disclose

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“pressure and vacuum ports 54 having lengthwise-extending axes that are perpendicular to the first axis” and that the bolts 55 “are readable as locking means.” Applicant respectfully traverses the rejection of claims 34, 38 and 45.

Claims 34 and 45 recite, “a housing *consisting of* first and second components that form an interior chamber . . . exterior pressure ports . . . and interior fluid communication channels connecting said exterior ports with said interior chamber.” As recited in claims 34 and 45, the housing is made of *two components* only. In contrast, the housing of the compressor of Bramstedt et al. is made of at least *four* components, namely, the head caps 49 and 50, housing 22 and head plate assembly 32. All four of said components are required to form the interior chamber, exterior pressure ports and interior fluid communication channels connecting the exterior ports with the interior chamber. Thus, Bramstedt et al. fails to teach, disclose or suggest a diaphragm pump housing that has an interior chamber, exterior pressure ports and interior fluid communication channels, which are formed of *only two components*. Further, the housing of each of the other references cited in the Office Action is made of at least three components.

Further, claims 34 and 45 recite, “a diaphragm pump *that can be assembled by hand*.” In contrast with applicant’s hand assembled diaphragm pump, the pump disclosed by Bramstedt et al. requires tools to assemble. For example, Bramstedt’s pump includes Allen screws 55 that secure the head plate assembly 32 to the housing 22. Bramstedt’s pump also includes stator screws 23, 24, which secure the diaphragm support assembly

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housing 22 to the power source 13. For this additional reason, independent claims 34 and 45 are not anticipated by or obvious in view of Ludwig.

Claims 38 and 39 are dependent on claim 34 and are believed to be patentable for the same reasons as discussed above with respect to claim 34.

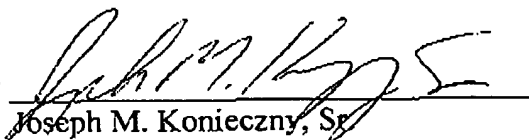
Claim 24 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Matsuura in view of Ludwig. Claim 24 is dependent on claim 23 and is believed to be patentable for at least the same reasons as discussed above with respect to claim 23.

In view of the aforementioned amendments and remarks, applicant believes the claims are in condition for allowance. An early action on the merits is earnestly solicited.

Respectfully submitted,

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